Corporate Action on Malaria Control
Best Practices and Interventions

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- Critical Success Factors

In Partnership with
GLOBAL BUSINESS COALITION
ON HIV/AIDS, TB AND MALARIA
CORPORATE ALLIANCE ON MALARIA IN AFRICA Member Companies

MARATHON
HALLIBURTON
Bayer
WOOD GROUP
Chevron
Coca-Cola
CAMERON
Global Industries, Ltd.
noble energy
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NOTE: The information contained in these case studies has not been verified by GBC as they have been self-reported by the profiled companies.
## Abbreviations and Acronyms

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<th>Abbreviation</th>
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<td>ABG</td>
<td>African Barrick Gold</td>
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<tr>
<td>AGA</td>
<td>AngloGold Ashanti</td>
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<tr>
<td>ACT</td>
<td>Artemisinin Combination Therapy</td>
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<td>ASAQ</td>
<td>Artesunate-Amodiaquine</td>
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<tr>
<td>ABCD</td>
<td>Awareness, Bite Prevention, Chemoprophylaxis, and early Diagnosis</td>
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<tr>
<td>AZ</td>
<td>Azithromycin</td>
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<tr>
<td>ES</td>
<td>Bayer Environmental Science</td>
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<td>BIMCP</td>
<td>Bioko Island Malaria Control Program</td>
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<td>CAMA</td>
<td>Corporate Alliance on Malaria in Africa</td>
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<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
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<td>CQ</td>
<td>Chloroquine</td>
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<td>CBO</td>
<td>Community-Based Organizations</td>
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<td>CSR</td>
<td>Corporate Social Responsibility</td>
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<td>DRC</td>
<td>Democratic Republic of the Congo</td>
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<td>DAVs</td>
<td>Directly Affected Villages</td>
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<tr>
<td>DNDi</td>
<td>Drugs for Neglected Diseases initiative</td>
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<tr>
<td>EDAT</td>
<td>Early Diagnosis And prompt Treatment</td>
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<tr>
<td>FFS</td>
<td>Farmers Field Schools</td>
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<tr>
<td>FCX</td>
<td>Freeport McMoRan Copper &amp; Gold Inc.</td>
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<tr>
<td>GBC</td>
<td>Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria</td>
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<tr>
<td>HVP</td>
<td>Highly Vulnerable Populations</td>
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<tr>
<td>HIV/AIDS</td>
<td>Human Immune-deficiency Virus and Acquired Immune Deficiency Syndrome</td>
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<tr>
<td>IRS</td>
<td>Indoor Residual Spraying</td>
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<tr>
<td>IEC</td>
<td>Information, Education and Communication</td>
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<td>IPTp</td>
<td>Intermittent Preventive Treatment of malaria during Pregnancy</td>
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<tr>
<td>KAP</td>
<td>Knowledge, Attitudes and Practices</td>
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<tr>
<td>LCS</td>
<td>Licensed Chemical Sellers</td>
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<td>LED</td>
<td>Light Emitting Diodes</td>
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<tr>
<td>LNG</td>
<td>Liquified Natural Gas</td>
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<td>LSHTM</td>
<td>London School of Hygiene and Tropical Medicine</td>
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<tr>
<td>LLINs</td>
<td>Long Lasting Insecticide-treated Nets</td>
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<td>MIS</td>
<td>Malaria Information System</td>
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<td>MCDI</td>
<td>Medical Care Development International</td>
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<td>MMV</td>
<td>Medicines for Malaria Venture</td>
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<td>MAM</td>
<td>Mobilize Against Malaria</td>
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<tr>
<td>M &amp; E</td>
<td>Monitoring and Evaluation</td>
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<td>NCA</td>
<td>National Confectioners Association</td>
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<td>NMCP</td>
<td>National Malaria Control Program</td>
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<td>NGO</td>
<td>Non Governmental Organization</td>
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<td>OVC</td>
<td>Orphans and Vulnerable Children</td>
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<td>PMI</td>
<td>US President’s Malaria Initiative</td>
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<td>RBM</td>
<td>Roll Back Malaria</td>
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<td>SBC</td>
<td>Strategic Behavioral Communication</td>
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<td>STCP</td>
<td>Sustainable Tree Crops Program</td>
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<td>TCHU</td>
<td>Tangguh Community Health Unit</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<tr>
<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>VCT</td>
<td>Voluntary Counseling and Testing</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WCF</td>
<td>World Cocoa Foundation</td>
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<td>WHOPES</td>
<td>World Health Organization Pesticide Evaluation Scheme</td>
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With over 225 million cases and close to one million deaths per year, malaria is a force to be reckoned with. Over the last five years, large-scale malaria control efforts have multiplied, financed by governments, international bilateral and multilateral donors, businesses and nongovernmental organizations.

Corporate Action on Malaria Control: Best practices and Interventions is a compilation of malaria control interventions and supportive activities undertaken by 15 companies and their NGO partners working in malaria endemic countries. It provides concrete examples of private sector-led malaria control programs in the workplaces and in communities. The publication aims to showcase quality interventions and best practices, exemplify opportunities and stimulate new interest. The companies profiled come from a wide range of industries: Energy and Mining, Pharmaceuticals, Food and Beverages, Construction and others.

For example, in the mining industry, Freeport McMoRan has developed a robust integrated vector control program in Democratic Republic of Congo (DRC) based on an in-depth needs assessment to determine the best-suited vector control approach. Prevention approaches include indoor residual spraying of mining sites and households in surrounding communities as well as distribution of long lasting insecticide treated nets (LLINs). In the food and beverage industry, Heineken’s innovative partnership with Bayer, the Government of Rwanda and Uterxwa textile manufacturer focuses on technology transfer and building local capacity to produce LLINs in Rwanda. In addition, Heineken’s programs in DRC and Nigeria raise awareness and improve health-seeking behavior within the workforce and communities. Their health programs also strengthen clinical management for malaria including use of rapid diagnostic tests and microscopic diagnosis based on internationally recognized protocols.
In the pharmaceutical industry, we highlight Sanofi-Aventis’ development of a new low-cost, high-efficacy anti-malarial drug—Artesunate Amodiaquine—with simplified dosing and targeted at populations across sub-Saharan Africa. We also recognize Novartis’ partnership with the Roll Back Malaria, IBM, Vodafone and the Tanzanian Ministry of Health using SMS, mapping, web technologies and statistical tools to monitor use of ACTs and rapid diagnostic tests in health facilities country-wide, preventing stock-outs of these critical commodities.

The case studies highlight crosscutting success factors including: 1) an emphasis on adopting integrated approaches to malaria control; 2) the role and benefits of multi-level collaborations and broad-range partnerships; and 3) prompt investments in malaria control.

This publication is intended for use by business managers, corporate level program planners and health team leaders, CSR and community relations officers, NGO partners and donors working in malaria control. It will also be of interest to communities with the desire to learn about private sector-led malaria control interventions that have yielded results. It is hoped that through the sharing of best practices, approaches and experiences, businesses will be motivated to take action on malaria control, and where programs already exist, to extend them beyond the workplace into communities and undertake a leadership and advocacy role both globally and locally.

Benchmark for Malaria Prophylaxis in the Mining and Oil Industries - Key Recommendations:

- Mandatory malaria chemoprophylaxis among employees should not be adopted until measures to improve compliance have been tried.
- Industry-wide collaboration should be continued, in particular to share the best training materials and methods.
- Malaria policies should consider local communities in the countries with endemic malaria, as the risk to non-immune employees can be reduced by protecting the whole community.
- Subcontractors should be required to have malaria control policies that are consistent with the client companies that contract with them.
- Companies should ensure that their policies are applied to the families of employees if the families visit or live in countries with endemic malaria.
- Individual risk assessment should include the length of time working in an endemic area.
- The incidence of malaria in employees should be monitored.
- A target should be set for compliance with malaria chemoprophylaxis by non-immune employees.

BUSINESS OVERVIEW:

African Barrick Gold (ABG) is an African-focused company with the vision of being the best gold mining company by finding, acquiring, developing and producing quality reserves in a safe, profitable and socially responsible manner. With more than 4,000 employees, African Barrick Gold plc is the largest gold producer in Tanzania and the fifth largest producer in Africa. The company has a portfolio of four operating mines (North Mara, Bulyanhulu, Tulawaka and Buzwagi) and numerous advanced exploration and development projects. ABG trades on the London Stock Exchange. Its operations represent 9.6% of the total gold production of Barrick Gold Corporation, which holds approximately 74% of ABG’s shares.

PROGRAM DESCRIPTION

ABG’s operations are located in the Lake Victoria Basin, an area known for its high malaria prevalence rate. The company recognizes the enormous human toll malaria has in these communities of operation, especially as its employees are drawn from within these communities. Prioritizing the health and well-being of its workforce, ABG’s objective is to help eliminate malaria transmission and support national efforts to reduce the prevalence of the disease. To this end, the company has implemented comprehensive malaria control programs, both at the mine sites and extending into the surrounding communities.

Effective Disease Management

For effective early case detection, ABG conducts routine screening and is currently piloting the use of a thermal imaging camera to assist with screening fevers. ABG also provides access to rapid diagnosis and quality treatment for people who become infected with malaria. Blood samples are taken from both employees and community members to monitor and track changes in disease prevalence and help inform ongoing health and malaria education programs that service employees and community members. Additionally, to help employees protect themselves from mosquito bites, ABG provides repellants, insecticide sprays and indoor residual spraying (IRS) for mine site accommodations and community housing. Moreover, it enforces the wearing of long
Early Diagnosis Using Thermal Imaging

African Barrick Gold tackles malaria through the application of a comprehensive malaria control program that targets mine sites and communities. Emphasis is placed on the recognition that early case diagnosis and treatment go a long way to aid malaria prevention. This has been achieved through vigilant screening and testing especially the use of a thermal imaging camera to assist with screening fevers - one of the most prominent symptoms of malaria infection.

CRITICAL SUCCESS FACTORS

Site-Specific Malaria Task Force Committees
The establishment of malaria task force committees, comprised of management and employees at each mine site, ensures that malaria-related challenges are addressed properly and in an integrated manner.

Collaborations and Partnerships
Recognizing malaria as a difficult health risk to combat, ABG’s malaria control programs involve many partners in this critical effort. Partnership with local and district government health services, private sector experts and NGOs, including Malaria No More, have enabled ABG to meet this challenge. It also helped to harness synergies, reach more individuals and households, and promote the building of healthier communities.
PROGRAM DESCRIPTION

Ghana, a malaria-endemic country, reported over four million cases of malaria in 2009. The Obuasi Municipal District in Ghana has continuous transmission throughout the year, resulting in a debilitating burden on the community and workforce of local business, including AngloGold Ashanti. In 2005, seven employees died as a result of malaria. That same year, the AngloGold Ashanti Obuasi Mine Hospital (Edwin Cade) diagnosed between 6,000 and 7,000 cases monthly among employees, contractors and employee dependents, resulting in a monthly case incidence rate of 24% for employees and contractors. The overall figure for malaria cases in the Obuasi Municipal District in 2006 was 11,800 cases. In 2004, malaria was recognized as a definite risk to the AGA operations in Africa. These incidences prompted an AGA corporate policy decision to implement an integrated malaria control program for the Obuasi Municipal District.

Beyond a clearly evident business case, and based on its values and business principles, AGA decided to implement a broad-based integrated malaria control program, that focuses not only on their employees and dependents, but also incorporates the whole Obuasi community and outlying villages. The Obuasi integrated malaria control program consists of four key components: vector control, diagnosis and management, surveillance and monitoring, and community information, education and communication (IEC) activities.

In the Financial Times, Steve Knowles, director of the AngloGold Ashanti Malaria Program, said, “A malaria control program is the best example of a sustainable corporate social responsibility program for a company operating in a malaria-endemic area, with a win – win for company and community.” AngloGold Ashanti’s Obuasi program is case in point, proving the above statement. The initiative has been an effective, efficient malaria control
program that embraces the community in which the company operates and has been beneficial to both AGA and the Obuasi District Community.

Vector Control
Prior to program implementation, baseline entomological studies were conducted in the Obuasi district during 2004 and 2005 to identify resident mosquito malaria vector species and determine insecticide resistance patterns. The results revealed that the main thrust of the program’s vector control component should be Indoor Residual house Spraying (IRS) of some 90,000 structures. As of 2010, 139,000 structures are being sprayed twice per year. In addition, long-lasting insecticide-treated nets (LLINs) were distributed to targeted institutions, such as orphanages, clinics, maternity hospitals, boarding schools and hostels. Finally, larviciding of permanent and temporal water bodies was conducted to prevent mosquito breeding.

Diagnosis and Management
In order to carry out effective malaria diagnosis and confirmation for Obuasi Mine employees and dependents, microscopic blood slide examinations or malaria rapid tests were conducted. The process adheres to national and international clinical treatments and protocols that are consistent with the distribution of artemisinin combination therapy (ACT) for uncomplicated malaria and the supply of quinine for complicated malaria. Furthermore, malaria drug prophylaxis is promoted to prevent malaria infection of non-immune individuals.

Surveillance and Monitoring
AGA does surveillance and monitoring of the program, which is conducted through a comprehensive computerized Malaria Information system (MIS) at the Malaria Control Center. Principally, this involves noting cases reported, the number of structures sprayed, houses screened, insecticide usage and bioassays to ascertain insecticide efficacy, mosquito resistance and quality control. Additionally, there is an insectary and a laboratory in place that conduct research and field monitoring of mosquitoes and insecticides. These are supported by an insecticide resistance management plan that monitors any possible mosquito resistance. For effective monitoring, all structures in the targeted district have been programmed with GPS location and mapped to capture disease clusters in the target area.

Vector Control Through Community Health Education
The Obuasi integrated malaria control program applies a four-pronged approach that includes vector control, diagnosis and management, surveillance and community sensitization. As such, intensive campaigns and community health education, have resulted in a high success rate in IRS coverage.

Goal
To reduce malaria transmission and its effects on communities and business through the implementation of a broad-based integrated malaria control program.

Program Scope
The program target over 230,000 people in the entire Obuasi Municipal District, including mine infrastructure, urban suburbs and outlying villages.

Outcomes
• High IRS coverage – 97% average per year since 2006 (139,000 structures - approximately 36,000 houses sprayed).
• Creation of 134 new jobs that employed local program supervisors and spray men.
• 81% reduction in malaria cases since 2005; a 6,093 decline in cases per month at the Edwin Cade Hospital; and an 8,600 decline in the overall Municipal Assembly District.
• The average monthly malaria medication costs have dropped 88% at the Edwin Cade Hospital, from $55,000 to $6,700 between 2005 and 2009.
• The average monthly work days lost due to malaria dropped from 6,983 days in 2005 to only 163 days in 2009.
• Reduced malaria incidence rate to 4% in the Obuasi Mine employee and contractor populations.
Information, Health Education and Communication

With respect to information, health education and communication (IEC), an intensive national and local multi-media marketing campaign preceded the spray program to sensitize the community about the program and also provided health information on malaria. The success of this initiative is demonstrated by the high spray coverage (96%) achieved during the first round of spraying and a continuous average of 97% in subsequent spray rounds. Spray operators are also provided with educational material and information, which they disseminate throughout the community during their rounds. Environmental management and lifestyle change is also promoted through education on the utilization of window screens and eradication of stagnant water and blocked drains. Ongoing malaria education is disseminated twice weekly via local radio and involves a combination of malaria awareness education and opportunities for phone-in questions. To survey and analyze the effectiveness of the IEC malaria programs, a knowledge, attitudes and practices (KAP) study on malaria was carried out in order to strengthen health education initiatives.

CRITICAL SUCCESS FACTORS

Broad-Range Public-Private Partnerships

The Obuasi program is conducted in partnership with Ghana Health Service, the National Malaria Control Program (NMCP) and the local Obuasi Municipal Assembly, and has the approval of the Ministry of Health. A stakeholder and steering committee that includes representation from AngloGold Ashanti, the local municipal assembly and the National Malaria Control Program, meets regularly to review policies and the program as a whole. While AGA is fully responsible for the implementation, funding and success of the program, it recognizes that adopting a broad-based participative approach with key stakeholders is paramount to the program’s success.

Malaria Control Center

Although primarily designated as the headquarters for coordinating the Obuasi program, the malaria control center serves as a training center for the core of AGA malaria projects at other mines. It is also used as a satellite research center by University of Ghana, government departments and other agencies.

Community Acceptance and Buy-In

Great emphasis was placed on community awareness and ownership of the program. The three main factors of the program’s success are: 1) Community acceptance – not only from leaders, but also home owners who must accept the spray operator into their house 2) Proficient, well trained, motivated and honest spray operators 3) Committed, competent and experienced leadership and discipline.
PROGRAM DESCRIPTION

Bayer has a full range of mosquito control products and is constantly developing new technologies for the fight against vectors of tropical diseases. The company promotes the distribution of insecticide-treated bed nets that provide effective protection against deadly mosquito bites. The company supports the international aid community and local industries in high-risk malaria countries by making available ready-to-use mosquito nets and necessary insecticide impregnation sets for untreated nets.

Community Investment Through Corporate Partnerships – Rwanda

The partnership between the Heineken Africa Foundation, Bayer Environmental Science, the Rwandan Ministry of Health, BRALIRWA brewery and Rwandan textile manufacturer, Utexrwa, responded to a clear need for bed nets in Rwanda with a sustainable, locally-sourced solution. Before the partnership began, all insecticide-treated bed nets in Rwanda were produced in other countries. The partners focused on transferring technical knowledge to the only textile manufacturer in Rwanda, Utexrwa, so that the company would be able to produce WHO-approved, long-lasting insecticide-treated bed nets (LLINs).

Bed Net Utilization: Combating Malaria with Customized Features

Bayer and partners developed a new technology for ready-to-use long-lasting insecticide treated bed nets made of industrially pretreated polyester fibers. Most bed nets are made of polyester or polyethylene, and meet the World Health Organization Pesticide Evaluation Scheme’s (WHOPES) requirement to last three years in the field and more than 20 washes. Bayer developed a new solution based on the much stronger polypropylene and the inclusion of active Deltamethrin in the fiber. The multifilament net is pleasant to touch and provides easy movement while hanging.

Bayer brought more than 50 years of experience working in Rwanda, along with seed funding for the project, while Bayer ES contributed its knowledge of pesticide formulation and bed net treatment. Heineken subsidiary BRALIRWA Brewery also played a central role in distributing the 140,000 bed nets produced at the Utexrwa factory. Quality control of the bed nets produced is being undertaken by Bayer ES laboratories and experts from the United Nations Industrial Development Organization (UNIDO).

BUSINESS OVERVIEW:

Headquartered in Leverkusen, Germany, Bayer is a global enterprise with core competencies in the fields of health care, nutrition and high-tech materials. Bayer is represented by over 300 companies worldwide and, as of 2009, has a global workforce of 108,400 employees. The company’s products and services are designed to benefit people and improve their quality of life. At the same time, Bayer creates value through innovation, growth and high-earning power.
Local Capacity Building

Bayer ES focused on local manufacture and insecticide treatment of bed nets, thereby building local capacity and making bed nets readily available and affordable to Rwandans. Also, in order to ensure proper bed net utilization, Bayer addressed such issues as cultural barriers and personal perceptions that could undermine bed net usage.

Goal

To promote universal coverage by reducing the bed net gap through promotion of local and sustainable manufacture of long-lasting insecticide-treated nets.

Program Scope

In order to promote net usage, Bayer targeted trainings at agencies that could promote behavior change such as commercial companies, NGOs, and government agencies.

Outcomes

- Through polyethylene manipulation, successfully developed a tear-proof fine-mesh fabric that can withstand regular use.
- Production of Deltamethrin-embedded net fibers – this newly developed manufacturing technology renders malaria-carrying parasites harmless within a few seconds of contact.
- Developed comprehensive target-specific IEC materials and strategies to teach most vulnerable populations like school children and non-literate adults about malaria prevention and treatment.
- Future outcomes for the program include an expected generation of up to 150 new jobs for Rwandans in the near term, with the potential to scale up production to 4.5 million nets per year and to employ 1,000 people.

Deltamethrin was included in the fibers of the net, allowing the insecticide crystals to migrate and keep the mosquito-killing concentration on the surface during washings, which is one of the reasons the net is expected to last longer in the field. With this newly developed technology, Bayer has created a novel manufacturing technique for another phase of technology transfer.

Bayer is not only working to increase LLIN distribution, but also to improve bed net utilization among those who receive nets. In order to accomplish this goal, Bayer held a workshop in the United States, while others are scheduled for Europe and Africa to further intensify the discussion and address issues, such as different cultural dynamics, value systems and personal perspectives of bed nets. These workshops include representatives from the private and public sector and nongovernmental agencies, all coming together and discussing how to find new and innovative approaches to overcome low usage rates.

Information, Education and Communication Materials

Bayer has the ambition to ensure that communities are aware of malaria dangers, symptoms and prevention and treatment methods available to them. Along with the distribution and donation of bed nets, Bayer has also carried out comprehensive information, education and communication (IEC) projects. The company developed a cartoon to teach school children and non-literate adults about the dangers caused by tropical diseases and educate them about possible methods of prevention and treatment. A new initiative is tackling the upcoming threat of insecticide resistance, which is endangering the success of vector control programs. The “Resistance Matters” initiative is targeted to decision makers and opinion leaders to take insecticide resistance management into consideration right from the beginning. Operationally, Bayer is recommending the rotational use of bendiocarb and pyrethroids in IRS programs, a strategy accepted in more and more countries in sub-Saharan Africa.
CRITICAL SUCCESS FACTORS
Fighting Disease and Creating Jobs
Bed net production is highly labor intensive, while the places where nets are needed are often places with a need for good-paying jobs. The current program in Rwanda is expected to generate up to 150 new jobs for Rwandans in the near future. Following a plan to scale up production to 4.5 million nets per year, the enterprise could employ 1,000 people.

Leveraging Multiple Corporate Capabilities
The partnership between Heineken Africa Foundation, Bayer Environmental Science (ES), the Rwandan Ministry of Health, BRALIRWA Brewery and Rwandan textile manufacturer, Utexrwa, is an extraordinary example of how companies can contribute their capabilities in complementary ways. Heineken contributed its deep knowledge of Rwandan business and government and its beverage distribution networks, which will be used to distribute bed nets as they are produced. Bayer ES meanwhile put its core competence in pesticide manufacturing and bed net treatment to use in order to build local capacity.
In Indonesia, the commencement of BP’s Tangguh LNG gas field operations prompted an initial baseline survey that showed surrounding villages to have high malaria prevalence rate of 23%. This prompted the project management at the end of 2003 to develop a 5-year plan for a health program with the commitment to “malaria eradication” both in the workforce and Directly Affected Villages (DAVs) located close to the project area. The goal was to prevent morbidity and mortality due to malaria in the work force and to significantly reduce malaria transmission rate in the entire DAV area. A Tangguh Community Health Unit (TCHU) was formed to implement this program. The malaria unit’s program comprised of dual-focused intervention: one targeted specifically at the workforce and the other at the DAVs. Both programs applied information, education and communication services as a key strategy to prevent malaria and promote health.

Malaria Policy Development and review

The company policy on malaria prevention has evolved since 2003 to include improved malaria surveillance data, better understanding of the malaria situation in the project area and increased staff capacity. A more holistic approach was adopted, which involved expansion and scaling-up of malaria program activities in all of the villages near the Tangguh project site. In the same vein, the use of chemo-prophylaxis by all employees, families, contractors and visitors to the Papua area was stopped and in 2005, and replaced by the introduction of a comprehensive program for prompt screening and treatment of workers from high endemic villages. The resultant effect of Early Diagnosis And prompt Treatment (EDAT) method was a decrease in malaria prevalence in the Directly Affected Villages, which also resulted in a dramatic decrease in malaria transmission risk at the LNG Plant construction.
Diagnosis, treatment Prevention

The Workforce malaria program provides diagnosis and treatment for malaria at the project clinics. It also includes regular malaria screening of workers from local endemic villages, education, health promotion and malaria vector surveillance coupled with regular vector control activities. When the need arises, chemo-prophylaxis and emergency standby treatment is made available to individuals whose duty schedules expose them to high risk malaria endemic.

Malaria control via Social Marketing

The Community program was geared towards improving access to diagnosis and treatment of malaria in the villages, through a social-marketing approach using trained village health workers. During 2004, TCHU embarked on a program of selecting and training a local resident as “village malaria worker” (VMW) in each Village. These VMWs were trained to carry out clinical diagnosis of malaria, confirmation with a rapid diagnostic test and to administer correct and rapid treatment. Additional support, such as personalized posters, ‘malaria kit’, test supplies, pre-packaged treatment and surveillance materials, were provided to the VMWs to use during home visits. To promote continuity, incentives were provided to VMW based on their performances. VMWs were encouraged to buy treatment packages for a (subsidized) wholesale price and resell to patients for a small profit, and patients paid a fee for each blood smear collected by VMWs. The blood smears were collected monthly by TCHU staff and used for the surveillance system, which allowed planning and monitoring of the program.

Appropriate treatment

In order to reduce incidences associated with improper diagnosis, incomplete or incorrect malaria treatment and counterfeit drugs, as was common in most local shops in Indonesia, the VMWs were supplied with Quality Assured chloroquine (CQ) and sulfadoxine-pyramethamine (SP). This combination treatment administered over 3 days with different doses for a number of weight categories was, at the time, the only effective treatment that was available in Indonesia. Mistakes were commonly made by even professional health workers during its administration.

Social marketing via trained Village Health Workers

A baseline health assessment at Tangguh in Indonesia prompted development of a comprehensive malaria program targeted at the company’s workforce and Directly Affected Villages. Applying a social marketing model, ‘Village Health Workers’ were trained and equipped with pre-packed test and treatment kits to correctly diagnose and treat malaria.

Goal

To reduce malaria transmission, morbidity and mortality in the workforce and in the entire Directly Affected Villages.

Program Scope

Target beneficiaries include all the Tangguh employees, their families, contractors, visitors to the Papua area and the populations of the surrounding villages.

Outcomes

- Decrease in malaria prevalence from 23% in 2000 to 0.6% in 2009.
- Since May 2005, the number of cases per month has stabilized to below 10 in a workforce of about 7,800.
- ‘Asymptomatic’ cases from the local villages were detected and treated by the workforce screening program.
- Lesser outbreaks of malaria led to fewer days away from work, contributing to overall increased productivity.
- The annual malaria incidence decreased from 88/1000 in 2006 to 11/1000 in 2008 - (an 88% decline).
- After 5 years, in a cross-sectional survey in 2008, evaluations showed a decrease in prevalence rate in 2007 when compared to 2000.
Simple VMWs would, therefore, find the treatment table even more complicated, and these could result in overdosing or under-dosing, resistance and “carriers” who can spread malaria. To prevent such errors, a manually operated blister packing machine was used to pre-package the treatment for each of the 5 weight categories. Each blister was divided into 3 daily portions. The blisters were inserted in attractive color coded boxes (for each of the 5 weight categories) with educational and promotional messages and weighing scales fitted with matching color-coded indexes to facilitate selection of the correct package by the semi-literate VMWs.

**CRITICAL SUCCESS FACTORS**

**Identification of Health System Gaps**

Identification of health system weaknesses and needs resulted in the design and implementation of programs that addressed local government capacity strengthening for malaria control since July 2009. Such needs identification resulted in a pilot project to support 8 health facilities in the Malaria Surveillance System. The purpose of improving the surveillance system is to be able to identify which population groups are most at risk of malaria, and where and when (most) transmission takes place, so as to be able to direct interventions where necessary. For example, initial unconfirmed data suggest that outside the villages in Bintuni Bay, adult men who work in temporary camps in primary forest are most at risk. Such camps include logging camps, camps of road construction workers, seismic survey camps and camps at building construction sites.

Additional evidence confirmation would allow for targeting of control interventions and elimination of malaria at its source, preventing spread to regular villages, including the DAVs and the Tangguh worksite. This analysis also highlights the need for a public-private partnership in which local health authorities work together with logging, oil, mining and construction companies to ensure that workers access the early diagnosis and treatment services.

**Plan for Local Ownership**

A solid sustainability plan for local ownership of the program promotes active engagement of all stakeholders involved. Plans are already in place to transfer the Malaria Control Program in stages, beginning July 2010, from BP to the local Health Department, and to a local NGO with a long history of providing basic health care in the area. As part of its capacity building program, BP will train local Health Department personnel in surveillance procedures, epidemiological investigation, microscopy and Quality Assurance, and provide general assistance and coaching during the first year of the program. The outcome of such activity will be evaluated and adjustment may be made to ensure success of the program in controlling malaria and keeping prevalence below 1 per cent. It can be expected that BP will continue to provide limited support for the program, consisting mostly of technical advice, monitoring and evaluation and quality assurance.
BUSINESS OVERVIEW:

The Corporate Alliance on Malaria in Africa (CAMA) was formed in 2006 by 12 multinational companies with operations in Africa. CAMA serves as a forum for companies to work together with governments and civil society to reduce the impact of malaria. CAMA supports sustainable scaled-up malaria control interventions that will achieve the maximum desired impact at country level.

PROGRAM DESCRIPTION

The World Health Organization (WHO) reported an estimated 3.5 million cases of malaria in Angola in 2006. High endemic countries like Angola are prone to the disease burden associated with malaria, which demands in-depth understanding of vector control interventions required to reduce the socio-economic burden of the disease. However, most such countries lack requisite technical capacity (human capital), particularly at district and peripheral levels, to manage and monitor ongoing interventions. The development of such capacities is critical to achieving malaria reduction targets. The Angola National Malaria Control Program (NMCP) developed a five-year strategic plan (2008-2012) aimed at reducing the impact of malaria by 60% by 2012. The plan outlines areas for key intervention as capacity building at the national level, strengthening case management systems and increasing epidemic preparedness by way of education, outreach and the development of effective monitoring and evaluation programs. In an effort to scale-up prevention methods, NMCP also identified building capacity in entomology to scale-up vector control.

The Corporate Alliance on Malaria in Africa (CAMA) worked closely with USAID’s Integrated Vector Management Program managed by RTI, the US President’s Malaria Initiative (PMI) and the Angolan Government (National Malaria Control Program) to develop an entomology training program targeted at mid-level provincial technicians to support in-country capacity for entomology surveillance and to ensure sustainability of malaria control interventions. The primary objective was to develop critical masses of expertise for entomological evaluations at the district level to enable the NMCP to implement locally appropriate and cost-effective vector control measures. The three-week course was focused on theoretical presentations and practicals (field observations, laboratory practical sessions, hands on experimentation, etc.) Topics covered include: basic malaria eco-epidemiology; vector control methods and mosquito sampling techniques; species identification; transmission indices; susceptibility evaluation (WHO and CDC methods); wall bioassays; and data management and utilization.
Entomology Training for Local Technicians

Through an elaborate partnership that harnessed public and private sector technical expertise, an entomology training workshop was designed and implemented in collaboration with the Angolan Government and targeted at local technicians to build a critical mass of in-country expertise.

Goal
To improve management and monitoring of malaria vector control interventions through strengthening in-country capacity for vector control.

Program Scope
The program targeted mid-level technicians from the 18 provinces in Angola, with a total of 40 technicians benefiting from and participating in the program.

Outcomes
- The workshop effectively trained 40 community health workers in basic entomology monitoring methodologies including conducting standardized larval and adult mosquito collections.
- Participants gained basic understanding of principles of malaria control, vector biology and control methods, applied techniques for vector surveillance and its integration into national health priorities.
- Development of entomology plans for each district to oversee malaria control interventions.
- Strengthened capacity of the NMCP at district level to monitor vector control activities and improve decision making.
- Strengthened capacity within the private sector on vector surveillance to support private and national malaria control activities.
- Establishment of a broad-based public-private partnership.

CRITICAL SUCCESS FACTORS

Country-tailored course design
The course was tailored to address in country needs and technical gaps with respect to vector biology, entomological techniques, surveillance and principles and practice of vector control.

Innovative leadership
CAMA provided a platform for a broad range of pioneering partnerships that took the lead in coordinating and ensuring effective program planning and implementation. This partnership capitalized on the diversity among partners to harness and leverage their potentials, resources and expertise to drive and manage the program to a successful conclusion. The Government of Angola, USAID/PMI, CAMA/GBC and RTI provided overall program oversight.

Effective Public-Private Partnership
The public-private partnership brought together the private sector, government, donors and NGOs to contribute their core competences, technical expertise and resources as follows:
- PMI/Angola: provided in-country leadership, coordinated government and implementing partners.
- PMI/CDC: provided Entomologists and oversaw the practical training sessions.
- USAID/IVM (RTI): worked with CAMA, designed and developed the entomology training workshop and identified African institutions with entomology capabilities for collaboration as trainers.
- WHO country and sub-regional offices: provided technical support and follow-up mentoring.
- Africa-based institutions: also provided entomologists as trainers.
- CAMA/GBC members: led government relations and coordination, provided transportation, logistics, training supplies. Mosquito specimens and technical expertise in entomological surveillance to support practical sessions. In addition, they provided samples of the different WHOPES approved LLINs and demonstrated effective use. CAMA member companies include: Marathon Oil Corporation, Chevron Corporation, Halliburton, Bayer, Cameron International, Coca Cola Africa, EDG Engineers, Global Offshore International, Noble Energy, Wood Group and Worley Parsons. GBC member companies Sumitomo Chemical and Vestergaard Frandsen provided technical expertise and financial support.
PROGRAM DESCRIPTION

Malaria poses a substantial threat in many of Chevron’s growth regions. The company recognizes the enormous human impact and social and economic risks that directly affect its employees and business due to malaria. Chevron’s largest malaria efforts are in Nigeria (in the states of Lagos, Delta, Abuja and Rivers on-shore and off-shore) and Angola. In Angola, primary efforts are in the province of Cabinda, which is the center of production operations for Chevron, and the capital city of Luanda. In Angola, prior to 2004, malaria accounted for a total of 1,000 lost work days per year among Chevron employees. This was considered a massive loss and prompted Chevron’s annual investment of $250,000 for anti-malaria efforts in Angola. Furthermore, malaria burden puts a strain on the company’s clinics, especially in the rainy season, during which more than five malaria cases are recorded per day, with children being the most affected. The disease’s burden and financial strain created a good business case for the program and gained the immediate support of Chevron’s management.

The objective of the malaria program is to improve disease awareness among the workforce and families, prevent malaria cases in the non-immune population (residents and dependents, rotators, business visitors), reduce malaria transmission and disease burden in the semi-immune (local) population, and minimize the serious outcomes from all malaria cases through early diagnosis and effective treatment. In sum, Chevron strives to ensure a consistent approach to malaria prevention across all locations operating in sub-Saharan Africa and Asia Pacific and raise global awareness through partnerships.

BUSINESS OVERVIEW:

Chevron Corporation is one of the largest integrated energy companies in the world. Headquartered in San Ramon, California, USA and conducting business in approximately 140 countries, the company is engaged in every aspect of the oil and natural gas industry, including exploration and production, refining, marketing and transportation, chemicals manufacturing and sales and power generation. In all of Chevron’s global public health efforts, key stakeholders participate across the program in the development of project goals, tools, trainings and other resources. Some key stakeholders include employees from its human resources, executive leadership at corporate and company levels, peer health educators, local and corporate physicians and clinicians, representatives from its internal employee networks, and employees who have been affected by diseases.
Corporate Partnerships to Combat Malaria

Chevron’s HIV/AIDS, malaria and tuberculosis efforts in the workplace and community programs are conducted with partners. As Chevron developed HIV/AIDS and malaria programs, the company was quick to recognize that its expertise was not in developing trainings around these diseases. Chevron partnered with recognized leaders in HIV/AIDS and malaria control to help guide planning, development and implementation. By partnering with relevant NGOs and companies to harness external expertise and best practices, a comprehensive program for global public health was created, which meets high external standards while maintaining consistency with Chevron protocols. Chevron’s partnership approach creates locally relevant programs and provides increased opportunities to leverage funds and knowledge that result in greater program impact.

At the regional and local business level, Chevron works with partners such as the Corporate Alliance on Malaria for Africa (CAMA), the Global Fund and the Global Business Coalition (GBC). Chevron’s partnership with the Global Fund resulted in five million dollars granted to Global Fund-supported anti-malaria efforts in Angola.

Information, Education and Communication

Chevron’s comprehensive malaria program is based on Awareness, Bite Prevention, Chemoprophylaxis and early Diagnosis (ABCD). The company developed a malaria awareness kit that is accessible to all employees and provides guidance on the malaria risk in sub-Saharan Africa and instructions on disease prevention. The kit includes an “ABCD Malaria Guide” web and CD-based learning video, Bite Prevention Brochure, chemoprophylaxis Q&A, online quizzes and a Chevron malaria hotline. In order to provide adequate information for employees and community members, malaria awareness materials are available in four languages with local and native speaker evaluations conducted to ensure accuracy.

ABCD Malaria Guide

Chevron’s partnership with leaders in malaria eradication resulted in the development of a malaria awareness kit, which provides guidelines to tackle malaria risk and apply protective measures in sub-Saharan Africa. This “ABCD Malaria Guide” kit is accessible to all employees and available in four languages.

Goal

To reduce malaria disease burden in vulnerable populations through sustained preventive measures, proper and early diagnosis and effective treatment across sub-Saharan Africa and Asia.

Program Scope

Over 10,000 employees and dependent populations benefit from this program in Africa and Asia, including key stakeholders in all of Chevron’s public health efforts.

Outcomes (Angola)

- Malaria cases dropped 30% in Chevron’s business units, from 3,741 in 2004 to 1,114 in 2008.
- Reduction in lost work days due to malaria, from over 1000 days to less than 300 days per year.
- 90% reduction in malaria-related overnight stay admissions to clinics.
- 90,000 insecticide treated window and door curtains and 14,500 nets distributed to employees and their families.
- 3,000 nets distributed alongside community education to individuals with HIV, sickle-cell anemic and pregnant women.
- Malaria teams conducted home visits to employees whose children presented malaria symptoms to ensure correct usage of bed nets and curtains.
Workplace and Community Interventions
Chevron partnered with local governments in a community effort to distribute 14,500 long-lasting insecticide-treated nets (LLINs) to employees and dependents and an additional 14,500 LLINs to community members. The partnership also provided in-home and school-based malaria prevention education. Follow-up visits were conducted, as needed, to educate the community about stagnant water, the environment, malaria prevention and treatment. In 2007 and 2008, with its partner Verstergaard Frandsen, Chevron began distributing 90,000 insecticide-treated window and door curtains, the largest roll-out of this kind and the first in the world.

CRITICAL SUCCESS FACTORS
Multi-level Expert engagement
Chevron takes very seriously its role as a corporate contributor to meeting the MDGs in health. As such, it has focused its efforts accordingly. Chevron seeks the best quality input from leading experts to help guide its health initiatives.

Quality Peer Health Educators
Chevron conducted a high-quality selection process for peer health educators that helped it achieve better results. Chevron also embarked on a continual search for best practices among stakeholders throughout the development process and brought them on board as their contributions were identified.

Integrated Program Approach
Chevron’s corporate health policies ensure that all employees are well informed and empowered to protect themselves against HIV/AIDS, tuberculosis, malaria and other diseases. Through an integrated approach to disease management the company eliminates isolated efforts and instead works to safeguard total employee health.
FHI/Ghana focuses on counseling and testing, HIV/AIDS care and treatment, advocacy, strategic behavioral communication, family planning, home-based care, sexually transmitted infection management, health service management, malaria prevention and treatment and cardiovascular disease. FHI/Ghana works in eight out of the ten regions: Ashanti, Brong-Ahafo, Western, Volta, Eastern, Greater Accra, Northern and Central. Both offices receive funding from a variety of sources, including the Centers for Disease Control and Prevention (CDC), Bill and Melinda Gates Foundation, GlaxoSmithKline, Hershey Foundation, Hewlett Foundation, Medicines for Malaria Venture, Pfizer, Inc., Shell International and USAID.

PROGRAM DESCRIPTION

In 2007, FHI, the World Cocoa Foundation (WCF) and the National Confectioners Association (NCA) joined forces to reduce the spread of HIV/AIDS and malaria in Côte d’Ivoire and Ghana. The partnership worked with cocoa farmers, their families and agricultural communities in cocoa-growing regions of both countries to integrate malaria and HIV education into “farmer field schools” (FFS) and train community peer educators to provide bed nets, anti-malarial medications and condoms. The two goals of the program were to: 1) Increase awareness, prevention and care activities related to HIV/AIDS and malaria that are locally appropriate, and 2) Strengthen partnerships at the community level to increase sustainability and improve access to services.

FHI worked alongside the Sustainable Tree Crops Program (STCP), a public-private partnership focused on improving the social and economic well-being of small farmers, to build and strengthen the HIV/AIDS and malaria initiatives in STCP’s programs within the framework of national efforts. FHI focused on strategic behavioral communication activities and linkages related to prevention of HIV/AIDS and malaria and leveraged partnerships with government programs, the private sector and local organizations on HIV/AIDS and malaria. FHI’s involvement in addressing these diseases within selected sites helped STCP respond to the long-term needs of rural cocoa farmers, their families and advanced the partnership’s overarching goals.
Farmer Field Schools
FHI tackled HIV/AIDS and malaria by integrating education about the diseases into farmer field schools to reach cocoa farmers and their families. Leveraging support through public-private partnerships, the organization worked to improve the social and economic well-being of small farmers while strengthening malaria and HIV/AIDS initiatives that complement national efforts.

Goal
To reduce malaria and HIV/AIDS-related incidence through prevention and care activities, increased partnerships and improved local access to services.

Program Scope
The program targeted cocoa farmers, their families and agricultural communities in cocoa-growing regions of both Ghana and Côte d’Ivoire.

Outcomes
- Existing partnerships were strengthened with national, regional and local government structures.
- Linkages were created between community volunteers, farmer field schools, agriculture extension personnel and the district health disease control units for continuous supply of ITNs.
- The number of trainees exceeded targets. Côte d’Ivoire targeted 4 trainers and 120 peer educators, but surpassed those with 18 trainers and 143 peer educators. Ghana targeted 4 trainers and 30 peer educators, while 16 and 40 were actually trained.
- Referral networks and linkages were strengthened.
- 419,670 people were reached in Ghana from 16 communities and 103,446 cocoa producers from 32 communities were reached in Côte d’Ivoire.
CRITICAL SUCCESS FACTORS

Program Integration
Integrating HIV/AIDS and malaria into one project made it possible to talk about the two major health threats in the communities. It was relatively easier to incorporate training and project activities into an already existing program that organizes the farmers in the community.

Community Ownership
To ensure the long term sustainability of the project and its interventions, FHI collaborated with and linked the project to local community-based organizations and non governmental organizations working on HIV/AIDS and malaria interventions, as well as the National Malaria Control Programs and the National AIDS Control Program in Ghana and Côte d’Ivoire. Another important factor was the training of traditional authorities and assemblymen as volunteers. This promoted effective mobilization of community members and implementation of activities in the farming communities.

Support Leverage
In order to increase impact, FHI-Ghana leveraged other existing and planned FHI projects, including the Pfizer-funded “Mobilize Against Malaria” project and other HIV/AIDS and malaria-prevention projects, which provided resources and ideas for improving and expanding impact. Meanwhile, FHI-Côte d’Ivoire leveraged on existing and planned projects, including the following:

- ANADER’s expansion of HIV/AIDS prevention, care and treatment services for hard-to-reach populations.
- Donation by Hershey Foundation to provide ITNs to pregnant women and children.
- The FHI implemented PAPO-HIV project, which uses funding from the CDC to provide basic healthcare (including VCT) to highly vulnerable populations, improves the continuum of care and referral networks for people living with HIV/AIDS and strengthens policies for the delivery of palliative and home-based care as well as services for orphans and vulnerable children.
- The Public Sector Partnership One Project, in collaboration with ABT Associates, uses USAID funding to provide technical assistance to the government (Ministry of AIDS, Ministry of Labor, Ministry of National Education, etc.) to better coordinate HIV/AIDS prevention and care initiatives in the workplace.
FCX operates in regions of the world with limited access to health services to prevent, manage and treat the infectious disease burden of malaria, tuberculosis, HIV/AIDS and cholera. FCX operations in Indonesia and the Democratic Republic of the Congo (DRC) are located in areas with some of the highest rates of malaria infection in the world that, if left unabated, pose a significant health risk to the workforce and hamper cost-effective business development. The company recognizes the importance of implementing effective programs to reduce malaria infection. The design and implementation of comprehensive workforce and community control programs allows sufficient flexibility to adjust operational needs and are specifically aimed at addressing gaps in existing malaria control measures. These programs have achieved excellent outcomes, establishing FCX as a mining industry leader in the fight against malaria.

PROGRAM DESCRIPTION

FCX runs two major malaria control programs in the Papua Province, Indonesia, and in the Katanga Province, DRC. The long-standing Indonesian malaria control program began in 1992 and the DRC program was initiated in late 2007. They share similar challenges, yet display unique social and environmental aspects that demand different control strategies. Information derived from collaborative research generated from these two programs has had a direct impact on malaria treatment and control guidelines both nationally and internationally.

Program 1: PT Freeport Indonesia, Papua, Indonesia

Since 1992, PT Freeport Indonesia, as the company’s Indonesian entity is known, has sponsored an integrated public health and malaria control program within the concession and immediate surrounding communities in Mimika District, Papua. The program is built around four fundamentals of malaria control: 1) Early malaria detection (both active and passive mechanisms) with prompt treatment of slide-confirmed cases, using special-access ACTs in alignment with research-documented resistance patterns (over 70% chloroquine resistance has been found); 2) An integrated approach for controlling mosquitoes using both chemical and environmental methods; 3) Integration with local public services, development organizations and foundations; and 4) Close involvement in malaria health promotion, school-level education, technical training, community awareness and local empowerment for sustainability of overall health improvement.

BUSINESS OVERVIEW:

As one of the world’s leading producers of copper, molybdenum, gold and cobalt, Freeport McMoRan Copper & Gold Inc. (FCX) understands the importance of balancing metal production needs with supporting economic and social development in the workforce and surrounding communities. Maintaining a healthy workforce is an essential element to overall productivity; therefore, workforce and community outreach programs strategically benefit productivity by reducing disease risk and improving worker health and underpin FCX’s strong corporate social responsibility agenda.
Among the many remarkable achievements, the most significant has been the gradual and sustained reduction in malaria rates in the workforce and dependent populations. Since 2002, the rate of malaria cases have remained between 225 per 1000 and 133 per 1000 workers. In the general community under coverage, the annual incidence of malaria had been reduced by 82%, from about 1,046 per 1000 population in 2000 to less than 185 per 1000 in 2010.

Program 2: Tenke-Fungurume Mining, Katanga, DRC

FCX’s Tenke-Fungurume Mining (TFM) affiliate commenced production of copper and cobalt in 2009 in Katanga Province, DRC. A basic workforce malaria control program began in 2007, involving a vector study and analysis and insecticide spraying of the worksite. Baseline surveys in 2007 and 2008 identified a high malaria prevalence (up to 77% of people infected), lack of access to proper diagnosis and treatment, gaps in basic knowledge about malaria and deficiencies in local health workers’ capacity and infrastructure to effectively tackle malaria. As a result of these findings, in conjunction with the early project construction phase, FCX designed and implemented a more comprehensive workforce and community development action plan in 2008 with the Provincial Health Department as partners. This resulted in an integrated vector-focused malaria control program in the form of selective insecticide space spraying, annual indoor residual spraying of the worksite and community houses and distribution of insecticide-treated bed nets in each household. Post-intervention blood surveys among local school children in late 2009 indicated an overall malaria prevalence of 23%, a substantial reduction of nearly 71% in malaria-infection levels in the community compared to 2007. In 2010, significant improvements were made to enable accurate diagnosis (training, microscopes and quality assurance testing), access to effective treatment and organized prevention, awareness and education campaigns in communities.
CRITICAL SUCCESS FACTORS

Partnerships and Effective Coordination with Key Stakeholders

Both FCX’s DRC and Indonesian companies work to establish close engagement and partnerships with local communities, governments, non-governmental organizations (NGOs), civil society and the programs’ operator International SOS to meet both immediate and future needs. As the company’s community disease control programs have developed, area partners have been engaged to expand health and preventive medicine services and move primary responsibility from private to public domains. Each site has established accountabilities and created sustainability development timelines and performance indicators in coordination with eventual mine closure. FCX actively seeks input from stakeholders regarding priority community issues and needs and uses this feedback to guide evidence-based social investment decisions. The company strives to leverage its programs through consultation with bi- and multi-lateral entities (e.g., the World Bank and IFC, USAID, The Global Fund to Fight AIDS, Tuberculosis and Malaria, established and competent NGOs) for support in community-wide program development and expansion.

Funding Commitment

Another critical factor was the company’s strong commitment to funding appropriately structured programs, in addition to the use of company community development resources to promote consultation and education, resulting in strong community engagement. In the last reporting year (2009), FCX invested $180 million in communities near its operations around the world. In Indonesia, the local FCX entity contributes 1% of annual revenues to the Partnership Fund for Community Development managed by a local Papuan community foundation. In 2009, this foundation contributed approximately US$12 million to health care programs in the area, including full operation of two community hospitals and public health outreach initiatives, such as malaria control. A similar partnership fund has been set up recently by the FCX DRC entity to function in the same manner.

Focus on Measurement

FCX focuses on collaborating in research projects to determine cost-effective methods for control and treatment of malaria, while complying with local government policies and external reporting mechanisms like the Global Reporting Initiative. The company ensures top-quality, effective program designs through use of routine evaluation, statistical analysis and evidence-based methodologies. Specific techniques used include an emphasis on accurate baseline surveys and post-intervention assessments; selection of malaria control methods based on real-time monitoring, data management and analysis; laboratory support services to monitor disease and vectors; and flexible programming structures to meet changing operational dynamics. Based on the strong research and evaluation capability of the malaria control program, FCX has undertaken formal collaboration with academic institutions and the Indonesian government to conduct ongoing clinical drug efficacy trials using newer artemisinin-based combination treatments (ACT). The program has consistently produced high-quality data that has been published in international scientific journals, furthering our understanding of malaria and of methods companies can adopt to combat the disease.

MiMiKA MALARIA INCIDENCE 2000-2010

![Graph showing MiMiKA Malaria Incidence 2000-2010](image-url)
Program Overview

Having operated in Africa over the decades, Heineken recognizes the health burden many communities face. As a result, the Heineken Africa Foundation was launched to foster and improve health in the communities of sub-Saharan Africa. Its key malaria programs are focused in high-risk, malaria-endemic countries like Rwanda, Democratic Republic of Congo and Nigeria, where Heineken focuses on implementing projects aimed at promoting universal coverage of mosquito nets and eliminating malaria. Through partnerships with stakeholders such as the National Malaria Control Programs, Ministry of Health, Utexrwa, Bayer ES, UNIDO, and Brairwa, a Heineken Rwandan subsidiary, the Heineken Africa Foundation engages in interventions that are aimed at promoting sustained behavior change, building local capacity and creating sustainable employment. For its workforce, Heineken implements malaria initiatives for employees and family members in six African countries.

The Heineken’s Work Place Program
Prevention and Diagnosis:
Democratic Republic of Congo

Heineken provides health care for its workforce in Burundi, Nigeria, Rwanda, Sierra Leone, The Republic of Congo and the Democratic Republic of the Congo (DRC). In these countries’ brewery clinics, malaria prevention and treatment is part of the health programs for staff members and their families. Malaria control is done in line with international policies. In DRC for instance, interventions include distribution at recruitment and regular re-supply of long-lasting insecticide-treated nets (LLINs) vector control activities in brewery clinics located in Kinshasa, Boma, Kisangani, Mbandaka, Bukavu and Lubumbashi, and use of microscopy and quality control. Laboratory confirmation of clinical diagnosis rules out the problem of unconfirmed and ‘presumptive cases’ that is common in most DRC Hospitals.

For malaria treatment, ACT is normally used, but Quinine IV is sometimes used when parenteral artesunate and artemisinine are difficult to acquire.
Sulphadoxine/pyrimethamine intermittent preventive treatment is given during pregnancy in some countries depending on the national guidelines. In recent years, the number of cases of malaria in employees and family members has decreased steadily. Unfortunately in 2010, the total number of cases of malaria increased again, due to more malaria transmission in the community.

The Heineken International’s Community programs

Behavior Change via Information, Education and Communication: Nigeria

In Nigeria, Heineken implements the “Kill Malaria Dead” project in Imagbon and Ilozi communities located in Odogbolu and Ijebu-Ode local government areas, both of which lack access to adequate health facilities. Strategies employed in these communities focus on building capacity for behavior change through information, education and communication (IEC) materials, like flyers, banners, T-shirts and posters. It promotes proper personal hygiene, sanitation, clean drainage and mosquito net use. Such IEC distributions are done through special events and campaigns organized by and reaching local people. A total of 4,500 nets is projected to be distributed over a three-year period. Furthermore, Heineken recognizes the need to bridge the diagnostic gap by equipping and furnishing clinics in each community with medical malaria parasite kit for diagnosis and analysis.

Local Bed Net Production: Rwanda

In Rwanda, the malaria project aims at promoting universal bed net coverage through effective distribution. It entailed the distribution of a total of 140,000 local bed nets targeted at communities around Heineken Brewery in Kigali and other highly endemic areas. Heineken formed partnerships with other businesses and like-minded stakeholders. A local textile company, Utexrwa (Usine Textile du Rwanda), was identified as the producer of the bed nets. In order to build local capacity within Utexrwa, Bayer Environmental Science agreed to transfer the technology on how to produce insecticide coated polyester nets to Utexrwa. Meanwhile, UNIDO (United Nations Industrial Development Organization) trained the current staff of UTEXRWA, as well as the 100-150 employees that have been engaged for this cause.

Local Bed Net Production

With the aim to promote sustainable local access to bed nets, Heineken’s partnerships and collaborations across a broad range of stakeholders resulted in the industrial capacity development of a local Rwanda textile company, Utexrwa. Utexrwa not only gained financial support for equipment and materials, but also gained technical know-how for efficient and high-quality bed net production.

Goal

To reduce malaria incidence through the promotion of universal bed net access and coverage.

Program Scope

The Heineken malaria program targets communities in two local government areas in Nigeria and in Rwanda.

Outcomes

- Partnerships and collaboration resulted in financial cost sharing, knowledge transfer, tools and resources and in-kind contributions between partners.
- Gap analysis by the Rwandan Ministry of Health identified a gap of 4,482,178 bed nets in the country in 2009.
- Development of a local bed net industry. Previously, there was sole dependence on imported bed nets from Tanzania and outside Africa.
- New job creation for 150 employees that is promoting local economic empowerment in Rwanda.
- “False positive” malaria diagnosis (based on symptoms) eliminated lab test confirmations in DRC.
The Heineken Africa Foundation provided seed money for the purchase of the necessary equipment. This collaboration and support by Heineken and UNIDO enabled Utexrwa to kick-start local bed net production in Rwanda.

To ensure that the bed nets meet the quality, efficacy and safety requirements of the World Health Organization, Bayer ES laboratories ensure that sample nets are tested at cooperating centers and by an UNIDO expert in Thailand. UNIDO contributed technically to the development of the bed nets and has taken responsibility to ensure the quality of the end products, as well as the health and safety standards used during production of the bed nets. The insecticide and binding polymer, which both meet the World Health Organization Pesticide Evaluation Scheme’s (WHOPES) specifications, will be provided by Bayer ES.

**Bed Net Distribution Network**

To ensure efficient delivery of these bed nets, Heineken capitalizes on the distribution networks of the Rwandan Ministry of Health. Bralirwa, the beer and soft-drink producer and a daughter-company of Heineken International, has the responsibility for distributing the first 140,000 bed nets that are produced by Utexrwa. Bralirwa will, therefore, provide resources in terms of logistics, distribution and management to accomplish this feat.

### DRC: CONFIRMED MALARIA CASES

- **2005** 7000
- **2006** 6000
- **2007** 5000
- **2008** 4000
- **2009** 3000
- **2010** 2000

### CRITICAL SUCCESS FACTOR

#### Corporate Partnerships

By establishing collaboration and partnerships over a broad range of stakeholders like Bayer ES, Utexrwa, Bralirwa, Ministry of Health and UNIDO, Heineken harnessed different levels of support ranging from financial commitment, technology transfer, logistics support to technical assistance. Collaborating with partners with like interests enhanced achievement of set objectives and goals.

#### Management Commitment to CSR

CSR-driven organizational leadership at Heineken was a key factor in the success of the program, especially in terms of commitment to community health, investment and use of technology.

#### Integration into National Malaria Program

Heineken acknowledges that the complete integration of the malaria intervention into the national anti-malaria program makes for easy evaluation and follow-up in terms of awareness creation, public sensitization, bed net distribution and evaluation of bed net usage, and allows it to use the existing scheme created by the National Malaria Control Program.

#### Local Ownership

Heineken’s engagement of various local stakeholders in the project enabled the program to be viewed as a locally-owned projects, thereby promoting effective stakeholders’ contributions and partnerships. Locally produced bed nets would be easily affordable and available for Rwandese. Furthermore, since the business partners foresee a potential spin-off and production scale-up to neighboring countries, there are good prospects for increased job creation and long-term local economic improvement. The general technology transfer for the production of the bed nets carried out by Bayer will enable the Rwandan company to participate in international competitive bidding processes (tenders) targeted to African countries.
At Lafarge, health and safety is a top priority, embodied in the company’s ambition to be among the healthiest and safest companies in the world and to be recognized as such by all stakeholders. Lafarge’s strong conviction is at the core of its Principles of Action that states, “There cannot be a sustainable leader without respect for the environment and social responsibility.” The company recognizes that health is part of the business strategy and that emerging markets are essential for Lafarge’s future, since they play an equally significant role in the company’s sustainability strategy. In order to address inequalities and expectations in low and middle-income countries, Lafarge strives to create value for new staff. Health is part of this strategy, as it is related to productivity and profitability.

PROGRAM DESCRIPTION

Health has always been a concern for Lafarge and has been historically managed at the business unit level. With the integration of Blue Circle in 2001, Lafarge faced new health issues and quickly became involved in efforts to prevent and treat HIV/AIDS in sub-Saharan countries. Since 2001, its mobilization efforts have resulted in a dramatic reduction in the mortality rate in its business units. But malaria continues to affect employees and their families in nine countries of operation. It is the second largest reason for consultations to the company clinics and causes 45% of absenteeism in Nigeria. Since malaria and HIV/AIDS are not the only diseases impacting its activities, the company is moving toward more comprehensive health strategies, including insurance, systematic periodic medical check-ups, checking of chronic and degenerative diseases and regular quality assessments of its retainer hospitals.
Comprehensive Malaria control

Lafarge developed a comprehensive Malaria control Road Map that targeted at its employees, their families and also contractors. Lafarge’s malaria control program includes awareness creation, malaria control in pregnancy, vector control, diagnosis, anti-malarial treatment and home-based management of malaria.

Goal
To promote a healthy workforce through the provision of a comprehensive integrated healthcare system

Program Scope
Lafarge’s malaria program covers contractors and employees’ families. In Benin and Uganda, the program extends to the surrounding local communities.

Outcome
- In Benin and Uganda, there were noticeable results such as decrease in malaria-related absenteeism (41% in Benin between 2005 and 2008).
- Reduction in malaria cases in the community (see graph).
- The combination of an aggressive prevention strategy (distribution of mosquito nets to employees and families), education and awareness programs, systematic usage of Malaria Quick Tests and prescription of ACTs to all simple cases show the cost efficiency of addressing malaria seriously in the workplace.
- Lafarge’s success led to the building of stronger alliances and deeper relationships in the regions of operation. In September 2010, the Benin unit received financial support to enrich its health project from the GlaxoSmithKline Foundation.

Malaria Prevention and Treatment
Lafarge’s malaria road map is about prevention and treatment. All business units are expected to have awareness and education programs in place, provide treated nets to their entire staff, and implement adequate vector control measures in their working sites and housing estates. In every site, Lafarge’s malaria program covers contractors and employees’ families. In two pilot business units (Benin and Uganda), Lafarge is extending its malaria program to the local communities. This is based on the recognition that only large-scale prevention programs can have an impact on the mosquito population and individual behavior, whether in terms of net coverage or indoor residual spraying (IRS). From the treatment point of view, all sites also provide adequate prophylactic treatment to all pregnant women, perform systematic bio-diagnosis and provide recommended anti-malaria treatments.

Emphasis is therefore placed on the “prevention is better than cure” slogan. Lafarge believes that by protecting its stakeholders from malaria, it will not only decrease the burden of patients in its clinics, but will also achieve positive impacts on medical expenses.

CRITICAL SUCCESS FACTORS

Engaging Active Employee Peer Educators
Peer educators are essential for any employee health program. In Lafarge, these are employee volunteers who use education and communication to ensure that their colleagues and other members of the community are aware of the local health challenges. They do not receive extra pay for the job they carry out. In Lafarge, there is approximately one peer educator per 20 employees. This group has been incredibly valuable for initiating dialogue with various groups.

Building strong partnerships
For Lafarge, building partnerships with public or non-governmental organizations to deal with health related issues was paramount as the company was quick to realize that health does not fall under its core competency. For the public organizations on the other hand, forming partnership with Lafarge created a forum and an entry point to reach a network of people through its supply chain: contractors, suppliers, etc. Such private-public partnership constitutes a good entry point
to engage a large number of people, who otherwise would be difficult to reach (e.g. truck drivers – a mobile population).

**Persistent Leadership to Overcome Challenges**

Though beneficial in the end, partnerships can prove difficult to build at the beginning while implementing malaria programs, as there are challenges associated with identifying potential partners. There are also challenges associated with reaching out to target groups. For instance, Lafarge’s pilot unit sites (Benin and Uganda) are located in remote areas where the populations are often “forgotten” because they are very far from towns (sometimes more than a two hour driving distance). In both cases, the company was persistent in reaching out to various organizations and was continually referred from one organization to another, until it found a fit with partners in an existing project. Though discouraged at first, the company invested a lot of time, energy, resources and motivational efforts in this process in order to reach agreements and achieve results in the end.

Likewise, diversity of partners can mean diversity of messages and focus areas. In the case of malaria, this can be confusing, as one organization could support IRS as the strategy to be adopted, while another might support mosquito net coverage as the better strategy. On a global level, Lafarge prides itself in partnering with worldwide organizations, such as CARE and GBC, and maintaining long-lasting local relationships with strong and sustaining partners, such as GTZ, USAID and the GlaxoSmithKline Foundation.
**PROGRAM DESCRIPTION**

Marathon Oil and its business partners worked with the government to fight malaria in its operations on Bioko Island in Equatorial Guinea through the Ministry of Health and Social Well-being. An implementation team comprised of leading health specialists from Medical Care Development International (MCDI), London School of Hygiene and Tropical Medicine, Yale University, Texas A&M University, Cruz Roja and the Harvard School of Public Health designed the Bioko Island Malaria Control Program (BIMCP) to interrupt and then drastically reduce the transmission of malaria on Bioko Island. BIMCP employs five main interventions: vector control; improved case management; information, education and communication (IEC); capacity building; and monitoring and evaluation.

**Vector Control**

The principal intervention of the BIMCP is vector control through indoor residual spraying, which breaks the cycle of infected mosquitoes continually infecting new victims. The spraying of all vertical surfaces with insecticides has been extremely effective in reducing the transmission of malaria. The first round of spraying involved close to 100,000 structures, while the current spray round is targeting 240,000 structures. Successive rounds of spraying conducted semi-annually have virtually eliminated one of the principal vectors, the Anopheles funestus mosquito, and have substantially reduced the level of infectivity among the other two vectors, Anopheles gambiae and Anopheles melas.

**Effective Case Management**

The second intervention of the BIMCP is geared toward improved case management. Medical workers are trained to diagnose and treat malaria using new protocols that rely on artemisinin-based combination treatments.
(ACT) drug therapies. This approach is aimed at overcoming resistance to longstanding treatments based on the use of a single drug, such as chloroquine. In 2005, Marathon Oil and its partners provided funding to underwrite the cost of distributing ACT free to children under fifteen years of age and pregnant women – the most vulnerable groups affected by malaria. In 2010, the Government authorized universal free provision of ACTs, as well as the universal free provision of malaria diagnosis. This is expected to substantially remove any barriers to access effective care.

**Capacity Building for Sustainability**

From the outset, a major project objective has been to build sufficient human and institutional capacity in Equatorial Guinea to sustain the interventions when BIMCP eventually ends. In this regard, there has been continual focus on integration of project management with the Ministry of Health and Social Welfare, including planning for progressive transfer of project management responsibility to the Equatorial Guinea National Malaria Control Program (NMCP). To this end, a cadre of new national program officers for the NMCP is currently receiving training overseas. They will become an integral part of the BIMCP technical team and subsequently assume program management responsibilities in a systematic and benchmarked manner.

**Monitoring and Evaluation**

The third major component is surveillance and evaluation. During the first phase of the project, window traps located at representative sites around the island enabled the BIMCP to monitor effectiveness in terms of reduction in mosquito population and their level of infectivity. Though this proved to be effective for several years, the reduced abundance of mosquitoes due to scaled-up control measures necessitated the introduction of an enhanced vector surveillance approach using a combination of human landing catches and light emitting diode (LED) light traps. In addition, trapping is now conducted both indoors and outdoors. These same surveillance sites provide the basis for a crucial early warning system to help avoid a resurgence of malaria in the future.

Annual blood tests for malaria-causing parasites among children and pregnant women enable the BIMCP to monitor effectiveness in the target population. Also, a series of household surveys

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**Surveillance and Surveys**

With focus on eradicating the vector-carrying parasites, the BIMCP used indoor residual spraying to eliminate disease-carrying mosquito species. In addition, surveillance and monitoring systems were put in place to measure program effectiveness and to issue early warning messages on malaria resurgence.

**Goal**

To reduce malaria transmission, morbidity and mortality through the use of indoor residual spraying and other integrated control measures.

**Program Scope**

The program targeted the entire Bioko Island population made up of approximately 250,000 inhabitants, including adult male oil workers, children and pregnant women.

**Outcomes**

- After five years, project results show a 99% reduction in malaria transmitting mosquitoes (based on pre-spray baseline research).
- 57% reduction in the presence of malaria parasites in children (based on blood-smear testing).
- Under-5 mortality reduced (64%), with an estimated 5,000 lives saved.
- The project brought additional economic benefit to the lower 40% earners in the population through a net income savings of 6-10%, which would have been spent on malaria treatment.
- For every dollar invested by the project, the return to the community in terms of averted cases, improved productivity and reduced absenteeism was four dollars. In other words, this is a very cost effective social project, having a community benefit/cost ratio of 4:1.
are undertaken prior to initiating indoor residual spraying in addition to monitoring case management at the mid-point and end of each project cycle. These surveys evaluate the impact of the project on under-five mortality, the incidence of malaria, the demand for treatment and the economic welfare of the Bioko Island population. This protocol has become the model for the national malaria control program.

**Information, Education, and Communication**
To increase the effectiveness of the BIMCP program, the company developed elaborate strategies to promote acceptance of indoor residual spraying, bed net usage, malaria treatment and the use of intermittent preventive treatment of malaria during pregnancy (IPTp) for expectant mothers. An integrated set of information, education and communication (IEC) materials were therefore developed to explain why interventions were necessary and to create awareness about the project, prevention and treatment of malaria. These communications materials used multiple languages and various methods to educate, remind and encourage the local population and health providers alike. Local focus groups were used to pre-test these materials and ensure they were relevant for the diverse communities on Bioko Island.

**CRITICAL SUCCESS FACTORS**

**Sustained investment**
The initial investment of $15.8 million dollars kicked off the plan for a robust malaria initiative in 2004. In autumn of 2008, Marathon Oil and partners, including the Government of Equatorial Guinea, announced the extension of BIMCP for an additional five years, with a $27.9 million commitment to carry the program through 2013. A major focus of the second phase of the project will be to develop capacity within the Equatorial Guinea National Malaria Control Program. Marathon Oil and partners also helped the Equatorial Guinea Government apply the project’s interventions to mainland Equatorial Guinea through a multi-year $26 million grant from the Global Fund and an additional Marathon Oil Foundation grant of $1 million. This has enabled the Equatorial Guinea Government to establish one of the first nationwide integrated malaria control projects in Africa.

**Community Engagement**
Since the malaria program was geared toward reducing malaria transmission in every household, the need to ensure community participation was paramount. Through focus group discussions, community members gave feedback that resulted in effective design and production of IEC materials. Furthermore, emphasis was laid on strengthening local capacity and project management skills among health workers to sustain the program beyond 2013. In general, since large scale community awareness and involvement was especially beneficial for the local health resource personnel responsible for case management (diagnosis and new treatment protocols), training of local health providers was conducted in conjunction with various community education and communication programs.
PROGRAM OVERVIEW

The NetsforLife® program empowers communities to eliminate malaria by providing, free of charge, life-saving prevention training and long-lasting insecticide-treated nets. In addition to the above mentioned partners, NetsforLife® has other collaborative partnerships, including Starr International Foundation, White Flowers Foundation and NGO partner Episcopal Relief & Development. Recognizing the needless deaths and suffering malaria causes and its crippling effect on Africa's economic development, these partners collaborated to implement an integrated malaria prevention program through a network of local faith-based organizations and NGOs. The NetsforLife® strategy is to collaborate with national malaria programs to mobilize, train and educate volunteers to work together to eliminate the disease by instilling a ‘net culture’ in hard-to-reach communities of seventeen malaria-endemic African countries (Angola, Botswana, Burundi, Democratic Republic of Congo, Ghana, Guinea, Kenya, Liberia, Malawi, Mozambique, Namibia, Nigeria, Sierra Leone, Tanzania, Uganda, Zambia and Zimbabwe). The two-phase program is currently implemented in seven African countries. Phase 1 - 2006-2008 was aimed at achieving a bed net distribution coverage of over one million bed nets; while Phase 2 - 2009-2013, has a goal of expansion and distribution of seven million nets.

In consonance with global policies and in keeping with the national malaria program priorities, the program evolved to reach beyond pregnant women, children under age five and immune-compromised populations, expanding to provide universal coverage to all individuals. NetsforLife® has an established, systematic program model that allows for quality control and consistency across countries.

BUSINESS OVERVIEW:

NetsforLife® is a collaborative partnership of The Coca-Cola Africa Foundation, the ExxonMobil Foundation, Standard Chartered Bank and other partners. Coca-Cola, established in 1886, is one of the world’s largest non-alcoholic beverage producers, owning four out of the world’s top five non-alcoholic beverage brands. Headquartered in Atlanta, Georgia, USA, Coca-Cola has an employee workforce of 92,400 worldwide, reaching over 200 countries with nearly 500 brands. ExxonMobil is the world’s largest publicly traded international oil and gas company. An industry leader in almost every aspect of the energy and petrochemical business, it has operations around the world, including a strong presence on the continent of Africa. The company employs 80,000 people with over 60% located outside the United States. The third corporate partner, Standard Chartered Bank Company, is a top financial institution established in 1853 with over 5,000 staff in 13 sub-Saharan countries across Africa. The Bank has been engaged in banking services primarily across Asia, Africa and Middle East and has a long record of supporting community initiatives.
Identification and Training of Malaria agents

Local community leaders and volunteers are identified, recruited and trained as malaria prevention and management agents. Through established networks of churches, agents are equipped to deliver malaria commodities, share information and manage malaria-related issues through a door-to-door campaign in their communities.

Goal
To eliminate malaria through empowering communities with nets and instilling a “net culture”.

Program Scope
The program is implemented in seventeen countries across Africa.

Outcomes
- 9,558 malaria agents trained between January and December 2009.
- 1.78 million nets distributed, out of which 1,422,057 (80%) were to children under five, 284,411 (16%) to pregnant women and 71,103 (4%) to others.
- 3.4 million people reached directly and 10.1 million indirectly by malaria messages.
- 1.25 million people sensitized/educated on malaria related issues.
- Data show there is behavior change at the end of Phase 1 such as increases in the number of people using bed nets, recognizing malaria symptoms and seeking treatment.
- The ‘net culture’ promoted an increase in demand for nets and investment in net replacement by individuals.
- Overall health system strengthening to promote sustained malaria control.

Key areas include:

Identification and Training of “Malaria agents”

NetsforLife® builds the capacity of faith-based organizations, including Anglican Dioceses, to serve as on-the-ground implementers. Once a partner is selected, it is called on to identify local volunteers or existing community structures to tap in order to identify “malaria agents,” local community-based volunteers. Community leaders are first trained as trainers through a one-week course, which promotes long-term stability of the program. The first round of identified malaria agents are then trained in four to five sessions. The training includes the basics of baseline survey data collection, followed by critical information about the core interventions for malaria prevention: net use, preventive treatment, symptom recognition, case management and treatment options. It also includes information on environmental management of malaria risk and community responsibility.

Community specific IEC customization

The NetsforLife® program is customized for the communities where it operates. Messaging materials are refined based on the country’s national malaria control messages, in order to avoid the dissemination of contradictory messages. This maintains consistency and ensures that the prevention priorities of each country are respected. Locally, NetsforLife® creates its outreach with a focus on responding to local perceptions about malaria its causes, symptoms and prevention.

Delivery of Bed Nets

Armed with nets for distribution and tailored malaria messages, malaria agents visit communities through a door-to-door campaign and deliver nets, share information and manage concerns. In some instances, community meetings are held to reinforce the proper use of the nets and other prevention strategies, and malaria agents engage in regular follow-up among the households assigned to them. Most program activities are implemented through the established network of churches which, as a trusted presence in the target countries, have significant capacity to impact behavior and inspire compliance. NetsforLife® serves all those in need regardless of faith.
CRITICAL SUCCESS FACTORS

Needs Assessment and Gap Analysis

NetsforLife's success is based on a thorough understanding of a community’s attitudes and perceptions of disease in general and malaria in particular, as collected and recorded in a community baseline survey conducted at the outset of each country program. The diagnostics conducted, apart from providing baseline data, supply additional information to ensure that the community health education is targeted to cover gaps in knowledge and to correct mistaken notions. The results of the survey are compiled (with other local and national malaria statistics), synthesized and provided to the community in the first of a series of meetings/workshops. This is a critical element in the approach, as community members are able to see the aggregate burden of the disease in their area, and the program becomes a path through which they can become actively involved against malaria.

Collaboration and Partnerships

Multiple layers of partnership provide depth and diversity to the NetsforLife program that exemplify the benefit of collective action. This richness has enabled the program to reinforce local structures and systems that will be sustainable. For example, the infusion of private sector practices uniquely drives the program’s M&E, which ensures real-time information that shapes an individual community’s progress. Also, the combination of corporate voices and church leadership provides powerful advocacy for long-term national and global commitment to fight malaria. In sum, the collaborations with other partners in this joint venture and the unique governance structure provide a great example of the power of private-public partnerships working for a common community good.

Sustainability: Community as Agent of Change

Early investment in monitoring and evaluating contributed to the success of NetsforLife. Furthermore, by recognizing that the sustainability of a healthy community increases workforce efficiency, these companies made sure that these initiatives were relevant to their staff and the communities in which they operate. The NetsforLife program recognized the power and reach of faith-based health networks and community volunteer malaria agents as behavior change catalysts throughout Africa.
PROGRAM DESCRIPTION

Maintaining adequate supplies of effective anti-malarials at the health facility level in sub-Saharan Africa can be exceptionally challenging, especially in remote rural communities in resource-poor countries. Stock-outs of anti-malarials cause deaths on a daily basis, and are one of the major barriers to effective management of malaria. Tanzania has the third largest population at risk of malaria, with 11 million cases occurring each year. Of the 131 districts in Tanzania, three rural districts (Lindi Rural, Ulanga and Kigoma Rural) were selected by the National Malaria Control Programme (NMCP) for inclusion in the 21-week SMS for Life pilot study. The three districts (in different regions of the country) had differing levels of health service delivery and access, and aimed to provide a broadly representative sample of the entire country. All the districts had malaria as the most common cause of death. The key objective for Novartis and SMS for Life was to provide better access to essential medicines in regions with the greatest need.

Novartis maintains a commitment to expanding access to medicines in the developing world. Recognizing that current technology has the potential to improve supply management for anti-malarial medicines in such rural regions, a collaborative partnership of public and private institutions was set up with the support of Roll Back Malaria, led by Novartis. The ‘SMS for Life’ initiative uses a combination of mobile phones, Short Messaging Service (SMS) messages and electronic mapping technology to track weekly stock levels of key anti-malarial medicines in health facilities. The overall goal is to eliminate stock-outs, increase access to essential malaria medicines in rural areas, and ultimately reduce the number of deaths from malaria.

SMS for Life Pilot Project

The SMS for Life system consists of an SMS management tool and a web-based reporting tool. The system automatically, send an SMS to each healthcare worker at each facility asking for the current stock of ACTs, quinine injectables and rapid diagnostic tests (RDTs) at their health facility. The health center staff replies in standard message format to report stock quantities. The data captured from the SMS stock count messages are collected and stored centrally on a secure website. The website provides: (a) current and historical data on stock levels of ACTs, quinine injectables and RDTs at the health facility and district level; (b) Google mapping of district health facilities with stock level overlays and stock-out alerts; (c) SMS messaging statistics (e.g. errors, received messages) and (d) usage statistics.
By bringing visibility to the stock levels in each health facility, the SMS for Life system, antimalarial drugs to be easily transferred between facilities in response to any identified stock-outs.

**CRITICAL SUCCESS FACTORS**

**Surveillance and Monitoring**

Novartis conducted weekly online monitoring of stock reports, stock-out statistics, error rates, deliveries and system access. In addition, surveillance visits were undertaken for 116/129 health facilities (90%) at least once to validate the accuracy of stock count data provided by health facility workers. At the end of the pilot study, District management team members were interviewed in order to (a) assess stock movement during the study; (b) obtain feedback on use and ease of access to the data system and on use of the registration/de-registration function for health facility mobile telephone numbers; (c) seek views on trainings conducted and training materials; (d) elicit opinions on the SMS for Life project versus other stock management practices and the potential for future scale-up of the scheme.

Mobile technology made data collection possible throughout the project: information was collected on every order and delivery of ACT or quinine injectable from Zonal Stores (medicines are stored and dispatched from one of nine Zonal Stores in Tanzania.)

**Partnerships and Collaborations**

The SMS for Life initiative is a result of a partnership of public and private institutions, including Roll Back Malaria united in the aim to reduce stock-outs of ACTs at the health facility level and provide better access to essential medicines in regions with the greatest need. Novartis engaged a wide range stakeholders to ensure the success of this initiative. As a result of the very successful pilot, SMS for Life is now being rolled out countrywide in Tanzania, and the scope of the SMS for Life programme is now broadening, with more countries across Africa setting up multi-district pilot studies.

**Mitigating Drug Stock-out via SMS**

Through the use of mobile technology, Novartis addressed the issue of anti-malaria drug stock-outs, which greatly undermine malaria treatment in Tanzanian health facilities. Programmed SMS sent directly to and from Health workers not only serve as a reminder for proper recording of dispensed drugs but also identified where needs are greatest to promote rapid replenishment.

**Goal**

To improve access to malaria treatment by reducing stock-outs of ACTs at the health facility levels in Tanzania.

**Program Scope**

A total of 129 health facilities were involved, covering a total population of 1.2 million.

**Outcomes**

- During the 21-week pilot study, the average response rate to SMS requests for stock count data was 95% (response never fell below 93% at any point).
- District stock reports were accessed on average once a day.
- Stock-out rate were reduced to 0.8% by the end of the pilot project compared to 26% observed at all facilities at the start of the project.
- In the Lindi Rural district, stock-outs were eliminated by week 8, with virtually no stock-outs thereafter.
- ACT stocks increased by 64% and quinine stock increased 36% across the three districts during the study period.

**Novartis Partner**
**Program Description**

**Research and Development Investment**

Pfizer invests in research and development, from early discovery to late-stage development, of malaria medicines. The combination of azithromycin (AZ) and chloroquine (CQ) has demonstrated efficacy in two clinical trials for the treatment of malaria. In consultation with stakeholders globally, Pfizer has identified a need for the use of this combination for Intermittent Preventive Therapy in pregnant women (IPTp), and will conduct further clinical trials in partnership with Medicines for Malaria Venture (MMV) and the London School of Hygiene and Tropical Medicine. Pfizer also collaborates with the WHO and its Special Program for Research in Tropical Diseases (WHO/TDR) to target malaria and other neglected tropical diseases. In April 2009, Pfizer and MMV signed an agreement that gives MMV access to Pfizer’s vast chemical compound library in order to test approximately 200,000 compounds for activity against P. falciparum malaria. Such public-private research partnerships are vital to overcoming the health challenges of developing countries.

**Mobilize Against Malaria Initiative**

Pfizer’s overarching commitment to combat malaria is three-fold and builds on a 25-year history in malaria: 1) researching and developing new therapies; 2) making Pfizer’s portfolio of medicines available through innovative commercial partnerships; and 3) supporting efforts to increase patient awareness of and access to effective use of anti-malarials. At the 2006 Clinton Global Initiative, Pfizer announced its five-year (2007-2011) program to prevent the spread of malaria by improving symptom recognition, treatment and referral through local grassroots training, education and awareness projects. Mobilize Against Malaria (MAM) is Pfizer’s signature social investment in malaria, supporting promising models designed to address critical gaps in malaria treatment and education in Ghana, Senegal and Kenya.
Under MAM, Pfizer provides support to four leading non-governmental organizations (NGOs) to close critical gaps in malaria treatment, training and public demand for quality services. These partners include PSI (formerly Population Services International), FHI (formerly Family Health International), Ghana Social Marketing Foundation (GSMF) and IntraHealth International. The purpose of the MAM Initiative is to reduce the rate of malaria morbidity and mortality through the effective delivery of artemisinin-based combination therapy (ACTs), the national standard for treating uncomplicated malaria in Ghana, Senegal and Kenya. In each country, MAM aims to:

- Strengthen malaria treatment and referral through targeted training activities and complementary community mobilization campaigns to improve the quality of treatment and strengthen the demand for care.
- Increase the recognition of malaria symptoms by health providers and patients.
- Increase the number of patients who receive the nationally recommended malaria treatment.
- Increase the effectiveness of the private and public health sectors to deliver appropriate malaria treatments.

**Ghana: Training Local Licensed Chemical Sellers**

Local licensed chemical sellers (LCS) trained by MAM Ghana bridge the private and public sectors. The LCS which are small retail outlets, act as a major source of basic medicines, particularly in rural areas. The program was implemented with technical assistance from partners FHI and GSMF. MAM Ghana has demonstrated that training LCSs and educating the communities they serve can dramatically improve malaria treatment, diagnosis and prevention.

**Kenya: Malaria prevention in pregnancy**

Pfizer worked with KEMRI-Wellcome Trust and PSI to reduce malaria in pregnant women and children under five, two groups most at-risk of malaria-related mortality and morbidity. Kenya has made measurable progress in reducing the country’s malaria burden, even though resources are still needed to reach women and healthcare providers, especially in rural, hard-to-reach communities.

**Goal**

To reduce critical gaps in malaria treatment and education in Africa.

**Program Scope**

The program targets service providers as well as pregnant women and children under five in Ghana, Kenya and Senegal.

**Outcomes**

- **Ghana**: A survey of LCSs trained by the program showed a measurable change in the number of LCSs recommending ACTs (14% in 2009 up to 72% in 2010).
- Through continuous training and professional support provided by Pfizer’s partners, thousands of LCSs are developing closer ties to their communities.
- **Kenya**: More than 70% of women attend antenatal clinics at least once during their pregnancy.
- Pfizer’s partners provide a boost to healthcare providers and patients at these clinics with improved training, health education and new information packages designed especially for new mothers.
- **Senegal**: Pfizer and its partners invested in the improvement of the health huts 24 of these primary health structures have been equipped with furniture, medical and surgical instruments, health management tools, ACTs and notice boards.
- **Gambia**: The SMS for Health pilot project reduced medication stock-outs in 50 health facilities.
Senegal: Health Huts system strengthening

Pfizer worked with IntraHealth International to strengthen the system of health huts in the Tambacounda region. Health huts are rudimentary clinics that are often the only healthcare facility accessible to rural communities. IntraHealth engaged community health workers across the three targeted districts to improve their ability to properly diagnose and treat malaria, manage side effects of treatment, help patients understand the importance of compliance and recognize cases that require referral to the nearest hospital.

SMS FOR HEALTH INITIATIVE

Ensuring uninterrupted access to medication poses a huge challenge to developing country health care delivery systems. In Gambia, as in many other African countries, stock-outs and shortages of critically needed medicines contribute to disease complications and even death among mostly vulnerable populations.

Pfizer in partnership with mobile technology company Vodafone, the Gambian Ministry of Health and Social Welfare and International Health Partners, used mobile phones to address the problem of stock interruptions and expired drugs in health facilities. The pilot initiative – ‘SMS for Health’ – trained health care providers to use simple coding via short message services (SMS) to report on medication stock levels and expiration dates. The program, which covered over 50 health facilities, enabled the Ministry of Health to easily track and replenish medication in health facilities, and at the same time to identify areas that needed improvement.

CRITICAL SUCCESS FACTORS

Collaboration with Local and Global Partners

By working with partners on the ground, Pfizer is able to treat, teach, build, and serve communities affected by malaria. The partnership between Pfizer, Vodafone, the Gambian Ministry of Health and Social Welfare and International Health Partners contributed to the success of the SMS for Health pilot project. Uniquely, Pfizer also supports independent monitoring and evaluation (M&E) partners in each country and a multidisciplinary team at the London School of Hygiene and Tropical Medicine (LSHTM). Collaborating with the local implementation partners and evaluators, LSHTM assists in the development of strong and effective M&E systems. Working across the MAM program, researchers at LSHTM facilitate the synthesis of cross-cutting issues emerging from the research, which are of strategic importance in the development of regional and global policy agendas on the delivery of health services.
BUSINESS OVERVIEW:

Sanofi-Aventis is a global healthcare company and a world leader in vaccines that was formed in 2004 when Sanofi-Synthélabo acquired Aventis. Engaged in the production of a broad portfolio of pharmaceutical products, such as prescription medicines, consumer healthcare (OTC) and generics, Sanofi-Aventis has a worldwide presence that cuts across both traditional and emerging markets. The company is present in over 100 countries and has a workforce of nearly 100,000 employees. The company’s range of essential healthcare assets, including a broad-based product portfolio is focused on patients’ needs.

PROGRAM OVERVIEW

Sanofi-Aventis, in partnership with Drugs for Neglected Diseases initiative (DNDi), through the Artesunate-Amodiaquine (ASAQ) program, developed a new antimalarial combination drug treatment that is designed to be available to the highest possible number of patients at low cost. This new antimalarial combination drug, which meets World Health Organization (WHO) requirements, was first registered in 2007 under the name Artesunate-Amodiaquine Winthrop® (ASAQ) for public markets, and the brand name Coarsucam® for private markets. The aim was to provide children and adults in sub-Saharan Africa a simplified dosing regimen that met the WHO recommendation for use of fixed-dose combinations of antimalarials. Because children are the most vulnerable to malaria, ASAQ tablets are soluble and can therefore be easily administered to small children.

Drug Development

The ASAQ development program included all activities that are usually involved in the development of a new pharmaceutical. Many of these activities represent the core competences of a research-based pharmaceutical company and include:

1) Industrial pharmaceutical development of processes required to reach production on an industrial scale at the Maphar – Sanofi-Aventis plant in Casablanca, Morocco.

2) Scientific: Pre-clinical pharmaco-toxicology studies were designed to further document the safety profile of AS+AQ in animals, as per the latest international requirements.

3) Clinical development: Clinical studies were set up to document the drug’s efficacy and safety in humans.

4) Regulatory: Registration files were prepared to meet the requirement of regulatory agencies and the WHO.
New Drug Development

Sanofi-Aventis engaged in the development and production of a new anti-malarial called Artesunate-Amodiaquine Winthrop® (ASAQ). Also known as Coarsucam® in private markets, this drug is a three-day treatment course priced at under US$1 for adults and under US$0.50 for children in public markets.

Goal
To improve access to treatment through the development of low cost, high quality and simple antimalarial combination drug regimen.

Program Scope
The drug development program is targeted towards children and adults in sub-Saharan Africa and provides a simplified malaria-dosing regimen.

Outcome
- Within three years, Sanofi-Aventis and its partner DNDi developed a new antimalarial drug combination that met the WHO’s expectations: a simple, effective and low resistance development treatment.
- ASAQ is the first new antimalarial developed by a public-private partnership and is the first antimalarial drug designed specifically for children and patients in Africa.
- With the development of its effective and low-cost antimalarial, Sanofi-Aventis created price and reference standards.
- An extensive, non-promotional IEC set of tools was offered to local actors to provide up-to-date information on the comprehensive management of malaria.
- Since the first launch of this new drug (2007), over 80 million malaria cases have been treated. Over 50 million treatments are expected to be distributed in 2010.

Information, Education and Communication
Sanofi-Aventis marketed extensively in preparations for the launch of ASAQ and its marketing in endemic countries. This included a highly comprehensive, non-promotional information, education and communication (IEC) set of tools to provide up-to-date information on the comprehensive management of malaria (prevention, diagnosis and treatment) through support adapted to all stakeholders. Color codes and pictograms were placed on blisters to minimize the risk of confusion between dosages and for easy directional use for those with minimum or no literacy skills.

Monitoring and Evaluation
ASAQ was designed with a new artesunate-amodiaquine ratio derived from a large demographic database of African adults and children and formulated to minimize the risk of over- and under-dosage. The company has also implemented follow-up clinical studies, including an innovative and ambitious Risk Management Plan. ASAQ is the first drug for which a “Risk Management Plan” has been set up to monitor safety and efficacy in real-life conditions in sub-Saharan Africa in close collaboration with the World Health Organization. It is hoped that this will help build the expertise and capacity in Africa that will enable monitoring of the safety of other drugs.
CRITICAL SUCCESS FACTORS

Collaborations and partnerships
While Sanofi-Aventis made use of its core competencies in terms of drug development, regulatory affairs, drug manufacturing, marketing and commercial operations, it still required a broad range of partnerships to enable Sanofi-Aventis’ success in achieving results. These partnerships include:

DNDi: Its decisive contribution was the development of the pharmaceutical formulation of ASAQ and its assistance in several pre-clinical and clinical studies.

WHO: It played an important role during the pre-qualification process and the design phase of the ASAQ Risk Management Plan.

Medicines for Malaria Venture: It helped finance the main study of the field ASAQ Risk Management Plan in Côte d’Ivoire.

Malaria Control Programs: Many of Sanofi-Aventis’ African country offices were involved in several phases of the project.

CSR and change in business model
Sanofi-Aventis is a long-standing provider of antimalarial drugs. In the early 2000s, Sanofi-Aventis realized that its usual business model needed readjusting to meet the demands of patients in developing countries. At the same time, the WHO was advocating for new fixed-dose combinations to be made widely available, and new partners, such as DNDi, emerged. Sanofi-Aventis’ motivation combined a sense of responsibility towards African patients and a clear long-term business objective in increasing its presence in developing and emerging markets by helping malaria-endemic countries break the vicious circle of disease and poverty.

Sustainable and affordable drug costing
Motivated by a commitment to make antimalarial drugs available and accessible, the company and DNDi agreed on a tiered-pricing policy. Through this policy, the target price for a three-day treatment course of ASAQ Winthrop was set at US$1 for adults and US$0.50 for children in the public markets, while the same drug is provided, under a different brand name (Coarsucam) at market prices through private sector pharmacies. This tiered-pricing policy is designed to be economically sustainable and therefore promote sustainable affordability and universal treatment access over the long term.